

# The epidemiology of heart failure

A survey of a middle-aged and elderly urban population segment of Copenhagen

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## ABSTRACT

The aims of the present study were to investigate the prevalence of heart failure, and risk factors associated with the disease, and to evaluate mortality and morbidity of systolic heart failure and LV systolic dysfunction and identify risk factors with possible impact on the prognosis.

A total of 1088 subjects aged 50-89 years were invited to participate in this population-based cross sectional study carried out at Frederiksberg University Hospital of Copenhagen. Of those invited, 764 middle-aged and elderly males and females (57%) participated (response rate 70.2%).

Each participant filled in a heart failure questionnaire, had an echocardiographic examination, an ECG, and blood and urine tests.

The overall prevalence of systolic heart failure was 3% and of systolic dysfunction 4.4% in the general population of Frederiksberg aged 50-89 years. Thus 1.4% was asymptomatic – mainly among younger males. Systolic heart failure increased rapidly with age and systolic impairment was predominately found, more than twice as frequently among men. Non-systolic heart failure was found in 4.5% of the women and 3.4% of the men.

Only 50% of patients with systolic dysfunction had a diagnosis of heart failure prior to the investigation and approx half of these patients were receiving treatment with an ACE inhibitor. Coronary heart disease and hypertension were the most common conditions associated with heart failure.

The prognosis of subjects with systolic dysfunction was poor whether they were symptomatic or not, with high rates of mortality and hospital admissions for any cardiac disease. Two-year survival was 76% compared to 97% for those without systolic dysfunction. Age and gender-adjusted relative risk of death because of heart failure was 4.6. For those with normal or almost normal systolic function, history or symptoms of heart failure were the dominant risk factors. Heart failure was the strongest predictive factor of a poor outcome compared to other cardiovascular and related diseases.

Although important advances have been achieved in medical management of heart failure, the outcome of the disease remains poor. This study revealed a large proportion of heart failure patients who were undetected, and even among those with acknowledged disease a significant number was insufficiently treated. Attention should be drawn to these facts, and improved methods must be developed for the diagnosis of CHF especially in those with diminutive symptoms.